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Michael Fortescue, Peter Harder and Lars Kristoffersen (eds)

*Layered Structure and Reference in a Functional Perspective*

LAYERED STRUCTURE AND  
REFERENCE IN A FUNCTIONAL  
PERSPECTIVE

PAPERS FROM THE FUNCTIONAL GRAMMAR  
CONFERENCE IN COPENHAGEN 1990

edited by

MICHAEL FORTESCUE  
*University of Copenhagen*

PETER HARDER  
*University of Copenhagen*

LARS KRISTOFFERSEN  
*Greenland's Home Rule Administration*

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## Parts of Speech

Kees Hengeveld

*Department of Spanish*

*University of Amsterdam*

### 0. Introduction<sup>1</sup>

Dik (1989:162) defines categorial differences between predicates in terms of the prototypical functions these predicates fulfil in the construction of predications. He gives sentence (1) to illustrate the prototypical functions of verb, noun and adjective:

- (1) *The old man died*  
 $die_V (d1x_i; man_N (x_i); old_A (x_i))_{proc}$

The verb *die* in (1) has a predicative function, the noun *man* the function of head of a term, and the adjective *old* an attributive function. These functions are captured by the definitions given in (2):

- (2) CATEGORIES OF PREDICATES (Dik 1989:162)
- a. A Verbal predicate (V) is a predicate which is primarily used in predicative function.
  - b. A Nominal predicate (N) is a predicate which is primarily used as head of a term.
  - c. An Adjectival predicate (A) is a predicate which is primarily used in attributive function.

One of the major advantages of a functional approach, as compared with a notional or a morphosyntactic approach is that it allows for generalization across highly divergent languages, since the functions to which reference is made in the definitions in (2) may be said to be universally recognizable.



First, the positing of a predicate variable allows for a consistent treatment of some forms of complementation. Consider example (10), which contains the verbal predicates *begin* and *read*. These predicates have the predicate frames given in (11):

(10) *John began to read a book*

(11) a.  $(f_i: \text{begin}_V(f_i))(f_1)$

b.  $(f_j: \text{read}_V(f_j))(x_1)_{Ag}(x_2)_{Go}$

In representation (12) of sentence (10) the predicate *read* is represented as an argument of the predicate *begin*, thus creating a situation in which the arguments of *read* are shared by *begin*:

(12)  $(f_i: \text{begin}_V(f_i))(f_j: \text{read}_V(f_j))(x_i: \text{John}_N(x_i))_{Ag}(x_j: \text{book}_N(x_j))_{Go}$

This approach accounts for the like-subject constraint imposed by aspectual predicates<sup>4</sup> such as *begin* and *continue*, achievement predicates such as *try* and *fail*, and some modal predicates, such as *be able to* and *have to*, without having to resort to predicate formation.

Second, the availability of a predicate variable allows for a new treatment of term-predicates, such as those illustrated in (13)-(14):

(13) *John is my best friend*

(14) *John is in the garden*

In order to account for sentences such as (13)-(14) Dik (1980) proposed a rule of term-predicate formation. This rule derives predicates from terms, which may or may not be provided with a semantic function. Instead of applying this predicate formation rule we may now formulate some very general predicate frames, such as those in (15)-(16):

(15)  $(f_1: (x_1)_\theta(f_1))(x_2)_\theta^5$

(16)  $(f_1: (x_1)_{Loc}(f_1))(x_2)_\theta$

Term-insertion in the term positions  $(x_1)$  and  $(x_2)$  of these predicate frames leads to the nuclear predications underlying sentences such as (13)-(14).<sup>6</sup> Here again the

availability of a predicate variable makes it possible to account for a construction type without having to resort to predicate formation rules.

### 1.2. Variables for restricting predicates

In FG every predicate predicates, whatever its position in underlying structure. For instance, nominal heads predicate a property of the referent of the term variable, and so do adjectival restrictors. For this reason predicate variables should be applied wherever a new predicate shows up, as in the representation of a nuclear predication in (17):

(17)  $[(f_1: \text{Verb}(f_1))$

$(x_1: (f_2: \text{Noun}(f_2))(x_1): (f_3: \text{Adjective}(f_3))(x_1))]$

The need to provide predicates at term level with a variable is shown in Keizer (this volume)<sup>7</sup>. Such a variable allows for an explanation of anaphors like the one in (18), partially represented in (19):

(18) *John has bought a blue car and I will buy a green one*

(19)  $(i1x_i: (f_i: \text{car}_N(f_i))(x_i): (f_j: \text{blue}_A(f_j))(x_i))$

'a blue car'

$(i1x_j: (Af_k: (f_k: \text{green}_A(f_k))(x_j))$

'a green one'

One of the advantages of providing restricting predicates with variables can be demonstrated by means of example (20):

(20) *an extremely intelligent girl*

The analysis of this term cannot be the one represented in (21). The adverb *extremely* is not a restrictor that is simply stacked on the nominal and adjectival ones. It has scope over the adjective only. This is accounted for in the representation in (22):

(21)  $*(x_i: \text{girl}_N(x_i): \text{intelligent}_A(x_i): \text{extremely}_{Adv}(x_i))$

(22)  $(x_i: (f_i: \text{girl}_N(f_i))(x_i): (f_j: \text{intelligent}_A(f_j): (f_k: \text{extremely}_{Adv}(f_k))(f_j))(x_i))$

In (22) the adverb *extremely* modifies the adjective *intelligent*. The resulting combination *extremely intelligent* is applied as a complex restrictor to the nominal head. This correctly reflects the scope relations between the three predicates.

### 1.3. Variables for illocutionary predicates

When variables are assigned to concrete predicates, there is no reason not to assign them to illocutionary predicates as well, as in the revised format for the interpersonal level given in (23), in which the illocutionary predicate restricts the variable  $F_1$ :

(23)  $(E_1: [(F_1: \text{ILL} (F_1)) (S) (A) (X_1)] (E_1))$

The need for this variable is shown by the fact that illocutionary predicates, too, may serve as an antecedent for anaphoric reference, as illustrated in (24), partially represented in (25):

(24) A: *Shut up!*

B: *Don't talk to me like that*

(25) A:  $(E_1: [(F_1: \text{IMP} (F_1)) (S) (A) (\text{shut\_up}_V (\text{you})_{AG}) (E_1))$

B:  $(\text{Neg } e_1: [(f_1: \text{talk}_V (f_1): (\text{AF}_1)_{\text{Manner}} (f_1)) (2\text{sg})_{AG} (1\text{sg})_{\text{Target}}] (e_1))$

Here under one of the possible interpretations of (24B) the pronoun *that* refers anaphorically to the illocutionary strategy selected by speaker A.

### 1.4. Summary

Incorporation of the different predicate variables in the hierarchical model of the utterance leads to a situation in which all layers conform to a uniform format, as shown in the revised model given in figure 2.

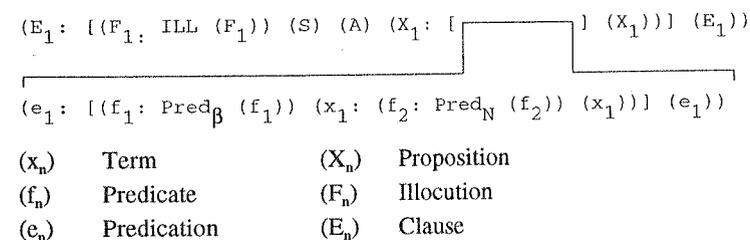


Figure 2. *The representation of utterances (version 2)*

## 2. New definitions for four parts of speech

### 2.1. Basic units

Using the variables just presented, the distinguishing uses of verbal, nominal, adjectival and adverbial predicates may be represented as in (26). Note that I restrict myself here to adverbs modifying the main predicate, roughly speaking manner adverbs. I will turn to other classes of adverbs later.

(26)

|                |                                    |                |                     |                      |
|----------------|------------------------------------|----------------|---------------------|----------------------|
|                | Head                               |                | Modifier            |                      |
| $(f_1)$ :      | Verb                               | $(f_1)$ :      | $(f_2)$ : Adverb    | $(f_2)$ $(f_1)$      |
| $(\alpha_1)$ : | $(f_3)$ : Noun $(f_3)$             | $(\alpha_1)$ : | $(f_4)$ : Adjective | $(f_4)$ $(\alpha_1)$ |
|                | $(\alpha = x, e, X \text{ or } E)$ |                |                     |                      |

In (26)  $f$  is a predicate and  $\alpha$  a term. I use the variable  $\alpha$  rather than  $x$ , since nouns may designate entities of different orders, and not just individuals. The adverbial predicate is represented as a modifier of a verbal head, just as the adjectival predicate is represented as a modifier of a nominal head.<sup>8</sup>

An illustration of (26) is given in (27):

(27) *The nice president sings well*

(28)  $(f_1: \text{sing}_V (f_1): (f_2: \text{well}_{\text{Adv}} (f_2)) (f_1))$

$(x_1: (f_3: \text{president}_N (f_3)) (x_1): (f_4: \text{nice}_A (f_4)) (x_1))_{AG}$

The representation of (27) in (28) shows that, as a consequence of the approach in which every predicate is provided with a variable, every part of speech can be characterized as the head (i.e. the first restrictor) of what might be called a predicate phrase. It is this predicate phrase that has a particular function in the predication, not the lexical item as such. Thus the noun *president* in (28) is not the head of a term but rather the head of a predicate phrase which is the head of a term. In order to avoid this terminological complication, I will use the term *predicate* for a lexical item together with its variable, and where necessary I will use the term *stem* for the lexical item as such, as indicated in figure 3.

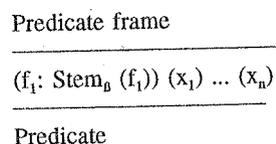


Figure 3. *Predicate frame, predicate, stem*

Application of the terminology of figure 3 to (26) leads to figure 4.

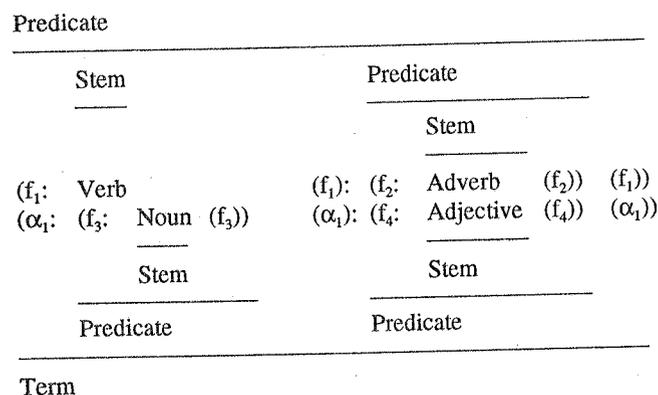


Figure 4. *Stem, predicate, term*

Sentence (27) illustrates the functions which uniquely characterize the classes of predicates involved, but these are not necessarily their only functions. The different possibilities are listed in (29)-(32):

|      | Predicative use   | Non-predicative use  |
|------|---|--|
| (29) | <i>John sings</i><br>(f <sub>1</sub> : sing <sub>v</sub> (f <sub>1</sub> ))             | -----  |
| (30) | <i>John is president</i><br>(f <sub>k</sub> : president <sub>N</sub> (f <sub>k</sub> )) | <i>The president sings</i><br>(x <sub>1</sub> : (f <sub>k</sub> : president <sub>N</sub> (f <sub>k</sub> )) (x <sub>1</sub> ))                               |
| (31) | <i>John is nice</i><br>(f <sub>1</sub> : nice <sub>A</sub> (f <sub>1</sub> ))           | <i>The nice president sings</i><br>(x <sub>1</sub> : ... (x <sub>1</sub> ): (f <sub>1</sub> : nice <sub>A</sub> (f <sub>1</sub> )) (x <sub>1</sub> ))        |
| (32) | -----   | <i>The nice president sings well</i><br>(f <sub>1</sub> : ... (f <sub>1</sub> ): (f <sub>1</sub> : well <sub>Adv</sub> (f <sub>1</sub> )) (f <sub>1</sub> )) |

Members of three of the four classes of predicates under consideration here, not just verbs, may be used predicatively in English.<sup>9</sup> The nominal and adjectival predicates in (30)-(31) require a copula, but from a typological perspective this is not a necessary correlate of their occurrence in predicative position. Manner adverbs do not have a predicative use<sup>10</sup>. Note that the representations for the main predicates in the left hand column are the same as those for the restricting predicates in the right hand column.

The definitions of the four categories of predicates given in (33) try to capture the uses of the four classes of predicates illustrated in (29)-(32):

### (33) DEFINITIONS FOR FOUR CATEGORIES OF PREDICATES

A *Verbal* predicate is a predicate which, without further measures being taken, has a predicative use *only*.

A *Nominal* predicate is a predicate which, without further measures being taken, can be used as the head of a term.<sup>11</sup>

An *Adjectival* predicate is a predicate which, without further measures being taken, can be used as a modifier of a nominal head.

An *Adverbial* predicate is a predicate which, without further measures being taken, can be used as a modifier of a non-nominal head.

These definitions exclude the possibility of a verbal predicate being used in a non-predicative function, but they leave open the possibility of nominal, adjectival, and

adverbial predicates being used in predicative function. The extent to which these predicates are used predicatively differs in fact from language to language (see Hengeveld Forthcoming).

Each definition is intended to capture the uses of basic predicates and of predicates which may be derived by a lexical rule, i.e. a predicate formation rule. For instance, both the basic predicate *man* and the derived predicate *paint-er* count as nouns. Each definition contains the proviso 'without further measures being taken' in order to exclude syntactically derived constituents, i.e. constituents which are not predicates, from the definitions. Consider the examples (34)-(37) and their FG representations:

(34) *the intelligent detective*

( $x_i$ : ( $f_i$ : detective<sub>N</sub> ( $f_i$ )) ( $x_i$ ):  
( $f_j$ : intelligent<sub>A</sub> ( $f_j$ )) ( $x_i$ ))

(35) *the singing detective*

( $x_i$ : ( $f_i$ : detective<sub>N</sub> ( $f_i$ )) ( $x_i$ ):  
(Sim  $e_i$ : [( $f_j$ : sing<sub>V</sub> ( $f_j$ )) ( $x_i$ )<sub>Ag</sub>] ( $e_i$ )))<sup>12</sup>

(36) *the detective who is singing*

( $x_i$ : ( $f_i$ : detective<sub>N</sub> ( $f_i$ )) ( $x_i$ ):  
(Pres  $e_i$ : [(Progr  $f_j$ : sing<sub>V</sub> ( $f_j$ )) ( $x_i$ )<sub>Ag</sub>] ( $e_i$ )))

(37) *the detective from London*

( $x_i$ : ( $f_i$ : detective<sub>N</sub> ( $f_i$ )) ( $x_i$ ):  
( $f_j$ : ( $x_j$ : London<sub>N</sub> ( $x_j$ ))<sub>so</sub> ( $f_j$ )) ( $x_i$ ))

The adjective *intelligent* in (34), the participle *singing* in (35), the relative clause *who is singing* in (36) and the prepositional phrase *from London* in (37) are all modifiers of the noun *detective*, and thus fit part of the definition of adjectival predicates. However, only the adjective *intelligent* is a predicate which can be used in this function without further measures being taken (cf. also Lehmann 1988). In order to use the verb *sing* as a modifier it requires a 'further measure' such as participialization (35) or relativization (36). In both cases the verb *sing* acts as the main predicate of an embedded predication (cf. de Groot 1989:36-7). The noun *London* cannot be used as a modifier without being introduced by a preposition (37). The prepositional phrase can be analyzed as a term-predicate, here represented as suggested in 1.1. Within the term-predicate the noun acts as the head of a term. Similar examples

could be given for the functional equivalents of the other parts of speech. See Dik (1989:164) for an overview of the situation in English.

With respect to the definitions in (33) it should further be noted that I have avoided making use of the notion of prototypicality but rather have focused on the distinguishing functions<sup>13</sup> of classes of predicates. The distinguishing function of a class of predicates is not necessarily its prototypical function. Thompson (1988) investigated the use of adjectives in some 100 pages of transcribed English conversation and found that the predicative use of adjectives, which would generally be considered non-prototypical, is far more frequent than their attributive use, as illustrated in table 1.

|              |                |
|--------------|----------------|
| Predicative: | 68% (N = 209)  |
| Attributive: | 32% (N = 99)   |
| Total:       | 100% (N = 308) |

Table 1. *Functions of adjectives in English conversation* (Adapted<sup>14</sup> from Thompson 1988:174)

Even if the attributive use of adjectives is not their prototypical use, it still is the use that distinguishes them from predicates of other classes. The definition of adjectives given in (33) makes use of this fact.

## 2.2. More adverbs

So far I have restricted myself to manner adverbs, but there are many more classes of adverbs. First, there are adverbs which modify stems other than verbal. Thus in (38) *extremely* modifies the adjectival stem *nice* and *remarkably* modifies the adverbial stem *well*, which itself modifies the verbal stem *sing*.

(38) *The extremely nice president sings remarkably well*

The three possibilities illustrated in this sentence are listed in the first part of (39), where superscripts indicate subclasses of adverbs on the basis of the unit they modify.

Secondly, there are adverbs modifying larger units. These have been classified in the second part of (39) on the basis of the layer at which they apply, largely following the classification of satellites proposed in Dik et al. (1990). In each case the adverb is represented using the format proposed in Vet (1986).

### (39) CLASSES OF ADVERBS

Adverb<sup>1</sup> (e.g. Manner, Degree):

(f<sub>1</sub>: verb (f<sub>1</sub>): (f<sub>2</sub>: adverb<sup>IV</sup> (f<sub>2</sub>)) (f<sub>1</sub>))

'The tall boy played **clumsily**'

(f<sub>1</sub>: adjective (f<sub>1</sub>): (f<sub>2</sub>: adverb<sup>IA</sup> (f<sub>2</sub>)) (f<sub>1</sub>))

'The **extremely** tall boy played remarkably clumsily'

(f<sub>1</sub>: adverb (f<sub>1</sub>): (f<sub>2</sub>: adverb<sup>Adv</sup> (f<sub>2</sub>)) (f<sub>1</sub>))

'The tall boy played **remarkably** clumsily'

Adverb<sup>2</sup> (e.g. Time):

(e<sub>1</sub>: predication (e<sub>1</sub>): (f<sub>1</sub>: adverb<sup>2</sup> (f<sub>1</sub>)) (e<sub>1</sub>))

'The extremely tall boy played remarkably clumsily **yesterday**'

Adverb<sup>3</sup> (e.g. Attitude):

(X<sub>1</sub>: proposition (X<sub>1</sub>): (f<sub>1</sub>: adverb<sup>3</sup> (f<sub>1</sub>)) (X<sub>1</sub>))

'The extremely tall boy **certainly** played remarkably clumsily yesterday'

Adverb<sup>4</sup> (Illocutionary):

(F<sub>1</sub>: ILL (F<sub>1</sub>): (f<sub>1</sub>: adverb<sup>4</sup> (f<sub>1</sub>)) (F<sub>1</sub>))

'**Honestly**, the extremely tall boy certainly played remarkably clumsily yesterday'

Adverb<sup>5</sup> (Textual)

(E<sub>1</sub>: clause (E<sub>1</sub>): (f<sub>1</sub>: adverb<sup>5</sup> (f<sub>1</sub>)) (E<sub>1</sub>))

'**Finally**, the extremely tall boy honestly certainly played remarkably clumsily yesterday'

Time adverbs such as *yesterday* specify the setting of the state of affairs and thus modify the predicational layer. Attitudinal adverbs such as *certainly* specify the speaker's propositional attitude, and thus modify the propositional layer. Illocutionary

satellites such as *honestly* specify the speaker's view on the communicative relation and thus modify the illocutionary layer. Finally, textual adverbs such as *finally* situate the speech act in the ongoing discourse and thus modify the clausal layer.

What all these classes of adverbs have in common is that they may be used to modify a head which is not nominal, be it a verbal, adjectival, adverbial or illocutionary stem, or a larger unit such as a predication, a proposition or a clause. They thus all fit the definition of adverbial predicates given in (33).

Unlike manner adverbs, some time and place adverbs also have a predicative use, a feature which may be related to their deictic nature. Examples are:

(40) *Peter was here*

(41) *The meeting was yesterday*

This use is not in conflict with the definition of adverbial predicates given in (33), where the possibility of adverbial predicates being used predicatively was left open in order to account for these uses.

### 2.3. Interjections

For the sake of completeness, I will briefly consider one more lexical part of speech. *Interjections* form a closed but important class of predicates, which are characterized by Schachter (1985:58) as 'words, often of an exclamatory character, that can constitute utterances in themselves, and that usually have no syntactic connection to any other words that may occur with them'. Making use of the utterance variable present in the hierarchical model of the clause (1.0), their distinguishing function may be represented as exemplified in (42) and defined as in (43):

(42) (E<sub>i</sub>: (f<sub>i</sub>: Ouch<sub>int</sub> (f<sub>i</sub>)) (E<sub>i</sub>))

(43) An *Interjectional* predicate is a predicate which, without further measures being taken, can be used as the head of a clause.

In the remainder of this paper this fifth and last<sup>15</sup> class of lexical elements will not be considered any further.

## 3. Parts-of-speech systems

It is now time to have a look at the typology of parts-of-speech systems. I will be concerned here primarily with those parts of speech which I consider to be the basic units in the construction of nuclear predications: verbs, nouns, adjectives and adverbs modifying the main predicate, roughly speaking manner adverbs, as listed in (44):

|      |   |  |
|------|---|--|
| (44) | Head  | Modifier   |
|      | (f <sub>1</sub> : Verb                                      | (f <sub>1</sub> ): (f <sub>2</sub> : Adverb <sup>1V</sup> (f <sub>2</sub> ) (f <sub>1</sub> )) |
|      | (α <sub>1</sub> : (f <sub>3</sub> : Noun (f <sub>3</sub> )) | (α <sub>1</sub> ): (f <sub>4</sub> : Adjective (f <sub>4</sub> ) (α <sub>1</sub> ))            |
|      | (α = x, e, X or E)  |  |

Many languages have less than these four classes of lexical elements. These languages can be classified along two parameters.

## 3.1 Flexible versus rigid languages

For the first parameter, compare the examples, discussed in Schachter (1985), of two languages which have been claimed to lack a class of adjectival predicates, Quechua and Mandarin Chinese:

Quechua (Andean, Schachter 1985:17)

- |         |                            |                             |
|---------|----------------------------|-----------------------------|
| (45) a. | <i>Rikaška: alkalde-ta</i> | b. <i>chay alkalde runa</i> |
|         | I.saw mayor-ACC            | that mayor man              |
|         | 'I saw the mayor'          | 'that man who is mayor'     |
| (46) a. | <i>Rikaška: hatun-ta</i>   | b. <i>chay hatun runa</i>   |
|         | I.saw big-ACC              | that big man                |
|         | 'I saw the big one'        | 'that big man'              |

Mandarin Chinese (Sino-Tibetan, Schachter 1985:18)

- |         |                                |                                |
|---------|--------------------------------|--------------------------------|
| (47) a. | <i>Neige nühaizi piaoliang</i> | b. <i>piaoliang de nühaizi</i> |
|         | that girl beautiful            | beautiful REL girl             |
|         | 'That girl is beautiful'       | 'a beautiful girl'             |

- |         |                              |                              |
|---------|------------------------------|------------------------------|
| (48) a. | <i>Neige nühaizi liaojie</i> | b. <i>liaojie de nühaizi</i> |
|         | that girl understand         | understand REL girl          |
|         | 'That girl understands'      | 'a girl who understands'     |

In Quechua the translational equivalent of an English noun, such as *alkalde* 'mayor' in (45), can be used both as the head of a term, as in (45a) and as an attribute within a term, as in (45b). Similarly, the translational equivalent of an English adjective, such as *hatun* 'big' in (46), can be used in both functions.

In Mandarin the translational equivalent of an English adjective, such as *piaoliang* 'beautiful' in (47), can be used predicatively only, as in (47a). If used attributively, as in (47b), it has to be relativized. The same goes for the translational equivalent of an English verb, such as *liaojie* 'understand' in (48).

Facts like these have led many authors to conclude that adjectives form a category intermediate between verbs and nouns (cf. Locker 1951, Thompson 1988, Wetzer Forthcoming). From a functional perspective, these approaches overlook an important aspect of the facts presented by Mandarin and Quechua. In Mandarin there is indeed reason to call both *piaoliang* 'beautiful' and *liaojie* 'understand' verbs, since each of them can be used predicatively only, witness the fact that both require relativization if used attributively. But in Quechua there is no reason to call both *alkalde* 'mayor' and *hatun* 'big' nouns. One might as well call them both adjectives. Each of the two words fits the definitions of both nominal and adjectival predicates. Quechua combines the functions of adjectival and nominal predicates in one part of speech, whereas Mandarin simply lacks a category of adjectival predicates. This difference can be represented as in (49):

|      |   |          |   |   |   |   |   |   |       |  |         |
|------|---|----------|---|---|---|---|---|---|-------|--|---------|
| (49) | <table border="1" style="display: inline-table; vertical-align: middle;"> <tr> <td>V</td> <td>N</td> <td>A</td> </tr> <tr> <td>V</td> <td>N</td> <td>-</td> </tr> <tr> <td>V</td> <td colspan="2">N / A</td> </tr> </table> | V        | N | A | V | N | - | V | N / A |  | English |
| V    | N   | A        |   |   |   |   |   |   |       |  |         |
| V    | N   | -        |   |   |   |   |   |   |       |  |         |
| V    | N / A   |          |   |   |   |   |   |   |       |  |         |
|      |   | Mandarin |   |   |   |   |   |   |       |  |         |
|      |   | Quechua  |   |   |   |   |   |   |       |  |         |

A similar phenomenon may be observed in two languages which have been claimed to lack a class of manner adverbs, Dutch and Wambon (CONN=Connective, VBLZR=Verbalizer, SS=Same Subject marker):

Dutch (Germanic)

- (50) a. *een mooi kind* b. *Het kind danst mooi*  
 a beautiful child the child dances beautifully  
 'a beautiful child' 'The child dances beautifully'

Wambon (Trans New Guinea, de Vries 1989)

- (51) *Jakhov-e matet-mo ka-lembo?*  
 they-CONN good-VBLZR.SS go-3pl.PAST  
 'Did they travel well?'

In Dutch the word *mooi* 'beautiful(ly)' can be used as a modifier of nominal heads, as in (50a), and of verbal heads, as in (50b). Wambon, on the other hand, simply lacks a class of adverbs. It uses medial verbs to create manner expressions, as in (51), where the medial verb *matetmo* 'be good', a verbalized form of an adjective, modifies the main verb. Thus Wambon lacks a class of manner adverbs, whereas Dutch combines the functions of adjectives and manner adverbs.

The differences between English, Dutch and Wambon may thus be represented as in (52):

(52)

| V | N | A | Adv <sup>1V</sup> |         |
|---|---|---|-------------------|---------|
| + | + | + | +                 | English |
| + | + | + | -                 | Wambon  |
| + | + | + |                   | Dutch   |

Generalizing these observations, parts-of-speech systems can be subclassified into two major groups: those in which a single part of speech may be used in different functions, and those in which every part of speech has a single function. The former may be called *flexible* languages, the latter *rigid* languages.

In order to show the importance of the flexible vs. rigid parameter I will compare an extremely flexible language, Tongan with an extremely rigid language, Tuscarora.<sup>16</sup> In one respect these languages are quite similar: they both have been claimed to have one major lexical part of speech. But there are also many differences. First consider the Tongan data in (53)-(56):

Tongan (Austronesian, Tchekhoff 1981)

- (53) *na'e si'i 'ae akó*  
 PAST small ABS school  
 'The school was small'
- (54) *'i 'ene si'í*  
 in POSS.3sg childhood  
 'in his/her childhood'
- (55) *na'e ako 'ae tamasi'i si'i*  
 PAST study ABS child little  
 'The little child studied'
- (56) *na'e ako si'i 'ae tamasi'í*  
 PAST study little ABS child  
 'The child studied little'

In Tongan the word *si'i* 'smallness' can be used predicatively, as in (53), as the head of a term, as in (54), as a modifier of a nominal head, as in (55), and as a modifier of a verbal head, as in (56).<sup>17</sup> This combination of functions without any formal adaptation is the rule rather than the exception in Tongan. The only limitations on the use of predicates in different functions are those which have to do with semantic compatibility.

Exactly the opposite situation obtains in the Iroquoian languages. Consider examples (57)-(61) from Tuscarora, one of the Iroquoian languages:

Tuscarora (Northern Amerind - Iroquoian, Mithun 1976)

- (57) *ra-kwatihs*  
 SUBJ-young  
 'boy' ('he is young')
- (58) *ka-teskr-ahs*  
 SUBJ-stink-ASP  
 'goat' ('it stinks')
- (59) *ra-kwatihs wa-hr-ø-atkahto-?*  
 SUBJ-young TENSE-SUBJ-OBJ-look\_at-ASP  
*ka-teskr-ahs*  
 SUBJ-stink-ASP  
 'The boy looked at the goat' ('he is young, he looks at it, it stinks')

- (60) *tá:ko:Θ kvhe?*  
 cat SUBJ.dead  
 'the dead cat' or 'the cat is dead' ("(it is a) cat, it is dead")
- (61) *yo-hstore? wa-hr-o-horvh-?*  
 SUBJ/OBJ-fast.PF PAST-SUBJ-OBJ-grow-PUNCTUAL  
 'He grew fast' ("it is fast, he grew")

Tuscarora has a very reduced number of true nouns. In order to render the meaning of an English noun it often uses a predication, as in (57)-(58). Thus most predicates in Tuscarora have a predicative use only and should therefore be classified as verbs. These examples furthermore show that in Tuscarora not only nominal predicates but even terms are lacking to some extent.<sup>18</sup> As a consequence, what in many other languages would be a single nuclear predication is in Tuscarora a set of appositional predications, as in (59), where a picture of the participants in a macro state of affairs is created through a description of their participation in other states of affairs. In a similar way appositional predications are used instead of adjectival and adverbial restrictors, as in (60)-(61).

The difference between Tongan and Tuscarora may thus be represented as in (62):

(62)

|                               |   |   |                   |           |
|-------------------------------|---|---|-------------------|-----------|
| V                             | N | A | Adv <sup>1V</sup> | English   |
| V                             | - | - | -                 | Tuscarora |
| V / N / A / Adv <sup>1V</sup> |   |   |                   | Tongan    |

The examples discussed so far clearly illustrate the important difference between flexible and rigid languages. Predicates in flexible languages have a high degree of what Hoffmann (1903) called *functional elasticity*, whereas predicates in rigid languages have not. Flexible languages show this functional elasticity not only in their parts-of-speech system, but in other domains as well. The most important of these is that they generally freely admit the predicative use of non-verbal predicates. This possibility is generally lacking in rigid languages. In general, then, predicates in flexible languages are not tied to particular functions in the construction of predications in the way they are in rigid languages.

### 3.2 The predicate hierarchy

The second parameter along which parts-of-speech systems can be ordered concerns the classes of predicates themselves. For each of the two language types, there are certain regularities with respect to the question of which functions a separate part of speech is lacking for or which functions may be combined in a single part of speech. It appears from my data that in both cases the predicate hierarchy given in (63) is relevant:

- (63) Verb > Noun > Adjective > Adverb<sup>1V</sup>

This hierarchy says that a category of predicates is more likely to occur as a separate part of speech the more to the left it is in this hierarchy.

A combination of the two parameters leads to a classification of parts-of-speech systems into seven main types, which are given in figure 5. I have given examples of each type on the basis of the classes of basic and derived predicates encountered in the languages involved.<sup>19</sup>

|          |                               |   |                       |  |                                    |
|----------|-------------------------------|---|-----------------------|--|------------------------------------|
| flexible | V / N / A / Adv <sup>1V</sup> |   |                       |  | Tongan, Mundari<br>Cuna            |
|          | V N / A / Adv <sup>1V</sup>   |   |                       |  | Quechua, Tagalog<br>Turkish        |
|          | V                             | N | A / Adv <sup>1V</sup> |  | Dutch, Jamaican Creole<br>Lango    |
| rigid    | V N A Adv <sup>1V</sup>       |   |                       |  | English, Mam<br>Kobon              |
|          | V N A -                       |   |                       |  | Wambon, Babungo<br>Nkore Kiga      |
|          | V N - -                       |   |                       |  | Mandarin Chinese, !Xũ<br>Tuscarora |
|          | V - - -                       |   |                       |  | Cayuga                             |

Figure 5. *Parts-of-speech systems*

Note that languages at best show a strong tendency towards one of the types. It is on the basis of these tendencies that I have assigned them a particular position in this classification. For instance, the rigid language Wambon is listed as a language without manner adverbs, but it has at least one. Mandarin, another rigid language, is

listed as a language without adjectives but has in fact an extremely limited set of adjectival predicates. The situation is even more complicated in flexible languages, where it is often difficult to say whether restrictions on the use of a certain predicate have a semantic or a lexical basis, in other words whether these restrictions are the result of semantic or of morphological specialization (cf. Wald 1971). This general difficulty in assigning languages to a particular subtype is due to the fact that parts-of-speech systems are constantly changing. This does not make the classification invalid, since the tendencies are often clear enough. Several languages can even be seen as occupying an intermediate position within this classification. These appear indented in figure 5. In Cuna (Chibchan-Paezan, Holmer 1947), for instance, most basic predicates may be used in all different functions, but it also has derived predicates which may be used in nominal, adjectival and adverbial function only. Nkore-Kiga (Central Niger-Congo, Taylor 1985), to give another example, has a closed class of some 20 adjectives, supplemented by a large open class of adjectival verbs.

Facts like these may be interpreted as an indication that figure 5 not only gives a classification of parts-of-speech systems, but also defines possible scenarios in their development.

With respect to the predicate hierarchy it is furthermore worth noting that it seems that the further to the right a part of speech is located, the higher the chance that it is realized by derived predicates only.

An interesting question is what factors are responsible for the positions of the classes of predicates on the predicate hierarchy. The distinguishing uses of predicates as defined earlier may help to understand these positions. I have listed these distinguishing functions in a rearranged format in (64):

$$(64) \quad \begin{array}{l} (f_1: \text{Verb } (f_1)) (\alpha_1)_\sigma \\ (\alpha_1: (f_1: \text{Noun } (f_1)) (\alpha_1)_\sigma \\ (\alpha_1: \dots (\alpha_1): (f_1: \text{Adj } (f_1)) (\alpha_1)_\sigma \\ (f_1: \dots (f_1): (f_2: \text{Adv}^{IV} (f_2)) (f_1)) \end{array}$$

A first subdivision can easily be made: verbs and nouns are the heads of their respective domains, and as such obligatory elements, whereas adjectives and manner adverbs are modifiers, which are optional and even have to be defined with reference to the word-class of the heads of their domains.

The fact that verbs appear to be more basic than nouns fits in nicely with the centrality of predication in FG. Every term consists of one or more predications, and therefore a predication is a more basic unit than a term, as is reflected in the representations in the first two lines in (64).

Adjectives share with verbs and nouns the potential to predicate something of an argument that refers to an entity, as indicated in the third line in (64). Manner adverbs, on the other hand, are unique in that they predicate something of an argument that refers to a property or a relation; they specify properties of properties and as such fulfil a quite different function from the other three classes of predicates.

### 3.3. Other adverbs

So far I have not paid attention to the place of adverbs modifying units larger than the predicate within parts-of-speech systems. The reason for this is that these adverbs behave quite differently from the manner adverbs to which I have limited myself so far. Languages of just about all the types listed in figure 5 appear to have at least some time and place adverbs, and often some attitudinal adverbs and other adverbs modifying larger units as well. Considering the representation of, for instance, time adverbs, as in (65), this is not surprising, since all these adverbs can be defined in terms of the larger unit they modify, irrespective of the classes of predicates that constitute this unit. The larger unit as such may be assumed to be universally relevant.

$$(65) \quad (e_i: [ \text{-----} ] (e_i): (f_i: \text{Adverb}^2 (f_i)) (e_i))$$

## 4. Conclusion

I hope to have shown that the introduction of a predicate variable makes it possible to provide refined definitions of four parts of speech. A consistent application of these definitions shows that languages are of two major subtypes: flexible and rigid. Languages of each of these subtypes can be classified along the same hierarchy.

## Notes

1. I am grateful to Simon Dik, Casper de Groot, Peter Harder, Evelien Keizer, Ole Nedergaard Thomsen, Jan Rijkhoff, and Johan van der Auwera for their comments on earlier versions of this paper.
2. This possibility was first hinted at in Dik (1989:50) and subsequently taken up by several linguists at the occasion of the IVth International Conference on Functional Grammar, Copenhagen, June 25-29, 1990. Keizer (this volume), with which this paper has much in common, contains a detailed proposal concerning the application of predicate variables in relation to the treatment of non-verbal predicates. Fortescue (this volume) applies a predicate variable in his analysis of derivational strings in Koyukon, and Nedergaard Thomsen (this volume) in his account of certain aspects of noun incorporation in Danish. For alternative views see Harder (this volume) and van der Auwera (this volume).
3. It has been objected (see e.g. van der Auwera, this volume) that *so* may also be used to refer to a predicate together with some of its arguments, as in:

(1) *John reads a book, and so do I*

where *so* has *read a book* rather than *read* as its antecedent. Against this objection, however, it may be argued that in such cases *so* should be interpreted as the simultaneous expression of several anaphoric elements in the underlying representation. Support for this argument may be derived from a quite similar phenomenon at term level (see also Keizer this volume). Compare the Dutch example (2) with its English counterpart (3):

(2) *Jan heeft een rode auto. Ik denk erover er*  
 Jan has a red car. I think about.it there  
*ook zo één te kopen*  
 also such one to buy

(3) *John has a red car. I'm considering buying one too*

In Dutch the properties *rode* 'red' and *auto* 'car' may be referred to separately by means of *zo* 'such' and *één* 'one' respectively. In English *one* is used to refer to both properties at the same time, a procedure which in Dutch is a second possibility. These examples show that the use of anaphora to refer to several antecedents at the same time is not excluded.

4. See Noonan (1985) for a discussion of the classes of predicates mentioned here.
5. See Keizer (this volume) for a different view on the representation of identifying constructions.

6. This approach furthermore has the advantage of solving the objection raised against Dik's term-predicate formation rule by Mackenzie & Hannay (1982:55). Mackenzie & Hannay note that this rule makes use of terms marked with a semantic function outside the context of a predicate frame, which, given that a semantic function is a relational notion, poses a major theoretical problem. This problem is solved by making the semantic functions involved part of a predicate frame again, as in (15)-(16).
7. An earlier attempt to account for this phenomenon may be found in de Groot (1983).
8. This parallelism between term phrases and what might be called predicate phrases is nicely reflected in Lango (Nilo-Saharan, Noonan 1981), where modifiers of verbal and nominal heads are preceded by the same 'attributive particle'. Compare the following examples:

(1) *dyángng à dwông*  
 cow ATTR.PRT big  
 'the big cow'

(2) *lócà òtìyò à cècèk*  
 man 3s.work.PF ATTR.PRT short  
 'The man worked briefly'

9. The use of nominal predicates is highly restricted in English.
10. As pointed out to me by Mike Hannay, the non-verbal predicate *well* in *John is well* should not be considered a manner adverb but an adjective. In attributive use, as in *a well man*, it does not mean 'in a good manner' but 'in good health'. It is this same meaning that is expressed in predicative use.
11. This class includes common nouns, proper names, and pronouns.
12. Note that the participial restrictor predication could itself be provided with a predicate variable. In that case the representation given here would come close to the one advocated by van der Auwera (1990: ch.6).
13. A characterization of a class of predicates in terms of its distinguishing function may tie in nicely with a semantic characterization of that same class. Harder's (this volume) definition of nouns as predicates which designate instantiations of types (rather than just types) can be seen as a semantic characterization of the distinguishing function of nouns.
14. In the original table Thompson has an even larger percentage for predicative adjectives, since she includes grammatically attributive but functionally predicative adjectives in her figure for this category. I have recalculated Thompson's figures according to the more restrictive grammatical criterion.

15. In FG *adpositions* are generally treated as grammatical elements. Mackenzie (this volume), however, proposes to recognize a restricted class of adpositional predicates in a functional grammar of English. An example of the application of this class of predicates is (i). This example is slightly adapted from Mackenzie (this volume), who does not use any co-indexed variable to the right of the colon (for a motivation of this approach see Mackenzie 1987):

- (1) (d1p<sub>i</sub>: under<sub>p</sub> (p<sub>i</sub>)<sub>φ</sub> (d1x<sub>i</sub>: table<sub>N</sub> (x<sub>i</sub>))<sub>Ref/So</sub>)  
'from under the table'

Here *under* is represented as a prepositional predicate, whereas *from* is the expression of the semantic function Source (So). The term as a whole refers to the place p<sub>i</sub> (Mackenzie proposes a distinct variable for terms referring to places) which is defined with reference (Ref) to the entity x<sub>i</sub> *the table*. In this way the presence of two different adpositions can be accounted for.

Note that in this representation an adpositional predicate would have the same function as a nominal predicate, that is, to act as the head of a term. This would bring the analysis of English close to the one that would be needed for a language which uses relational nouns to express spatial relationships. Consider the following examples from Mandarin Chinese (Sino-Tibetan, Li & Thompson 1981):

- (2) zài fángzi-pángbian  
at house-beside  
'beside the house'
- (3) pángbian dou zang le  
side all dirty PRT  
'The side is all dirty'

In (2) the relational noun *pángbian* is used to designate a spatial relationship, in which case it combines with the general locative marker *zài*. In (3) it designates an object, which is understood in relation to another object, e.g. a house, which here remains unexpressed. The terms in (2)-(3) may be represented as in (4)-(5) respectively:

- (4) (p<sub>i</sub>: pángbian<sub>N</sub> (p<sub>i</sub>) (x<sub>i</sub>: fángzi<sub>N</sub> (x<sub>i</sub>))<sub>Ref/Loc</sub>)  
'beside the house' ("at the side of the house")
- (5) (x<sub>i</sub>: pángbian<sub>N</sub> (x<sub>i</sub>) (Ax<sub>j</sub>)<sub>Ref/φ</sub>)  
'the side (of it)'

In English too the relationship between adpositions such as *outside* with a corresponding noun is obvious. For these reasons it seems to me that the adpositions considered here, in so far as, or rather, as long as, they can be considered lexical elements, might be treated as a subclass of nouns with a highly restricted distribution. In a similar way those adpositions which have their origin in serial verbs might be treated as a subclass of verbs, as long as they can be said to act as lexical elements.

16. This discussion owes much to Broschart (Forthcoming) and Sasse (1988). Broschart (Forthcoming) contains an extensive discussion of the noun-verb distinction in Tongan, Cayuga (a language closely related to Tuscarora: both are Iroquoian), and several other languages. Sasse (1988) contains an insightful description of the Iroquoian language type, focusing on its verbal orientation.
17. Note also the use of *ako* 'school, study' as the head of a term in (55) and its predicative use in (57)-(58).
18. Tuscarora does have the possibility of building headless relatives.
19. The following sources were used for the languages mentioned: !Xú: Köhler (1981), Babungo: Schaub (1985), Cayuga: Sasse (1988), Cuna: Holmer (1947), Jamaican Creole: Bailey (1966), Kobon: Davies (1981), Lango: Noonan (1981), Mam: England (1983), Mandarin Chinese: Li & Thompson (1981), Mundari: Hoffman (1903), Nkore Kiga: Taylor (1985), Imbabura Quechua: Cole (1982), Tagalog: Schachter & Otones (1972), Tongan: Tchekhoff (1981), Turkish: Lewis (1967), Tuscarora: Mithun Williams (1976), Wambon: de Vries (1989).

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